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ABSTRACT

Although the program-planning-budgeting system (PPBS) has been used in higher education to improve planning, budgeting, and decision making, examination had not been conducted to determine if the technique was consistent with planning, budgeting, and decision-making "theory." This paper reports the findings of such a theoretical examination. Models in the areas of "planning theory," "budgeting theory" and "decision-making theory" were analyzed to select appropriate models in each area. Examination was conducted to determine if PPBS was consistent with planning, budgeting, and decision-making models selected. PPBS was judged to be consistent with all the models. (Author)

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A Theoretical Examination of PPBS to Determine Its Suitability As a Management Tool for a University

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A Theoretical Examination of PPBS to Determine Its Suitability
As a Management Tool for a University

By
Melvyn C. Raider

Not too long ago, in a paper which appeared in the Public Administration Review Allen Schick presented an analysis of factors which contributed to the demise of PPBS of the Federal bureaucracy. Among the many perceptive observations presented two appeared to be most significant for university administrators. Schick pointed out that PPBS died because the system was basically incompatable with the routines of putting together and justifying a budget. In addition, PPBS was implemented on a government-wide basis with little consideration given to its suitability to individual departments.[1]

University administrators have not yet had sufficient experience with applications of PPBS in their institutions to conclude that PPBS has failed. At present it is safe to assert that many university administrators who have implemented Program-Planning-Budgeting Systems on their campuses are in quandary. State government budget officers as well as many scholars have contended that the system will improve university planning, budgeting and decision-making. Actual practice has yielded contradictory results. To date systematic study has not been conducted to determine if PPBS is in fact consistent with planning, budgeting and decision-making "theory" within the context of higher education. Such study may provide the basis for assessing suitability of PPBS to universities and hence predict outcomes in advance of many more years of actual experience. The purpose of this paper is to report the findings of such an examination.[2]

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[1]Allen Schick, "A Death in the Bureaucracy: The Demise of the Federal PPB" Public Administration Review, March/April 1973.

[2]Melvyn C. Raider, "Program Budgeting and Organization Theory" unpublished Ph.D. dissertation, Wayne State University, 1973.

PPBS in Perspective

Discussions and deliberations, in recent years, concerning the applicability of PPBS to higher education has resulted in the general acceptance of two broad assertions. The first is that PPBS presents many difficulties in implementation.[1] However, it is believed with time, effort and sufficient resources difficulties could eventually be overcome.[2] The second is that the internal logic of PPBS is irrefutable. It is assumed that the basic ideas and methods which comprise PPBS can improve planning and decision-making in colleges and universities.[3]

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[1]Marvin W. Peterson, "The Potential Impact of PPBS on Colleges and Universities," Journal of Higher Education, Vol. 42, No. 4 (April, 1969).

Robert J. Parden, An Introduction to Planning, Programming, Budgeting, An Evaluation for Colleges and Universities, (Santa Clara, California: University of Santa Clara, 1970).

Coordinating Council for Higher Education, "The Development of the State's Programming and Budgeting System in California Public Higher Education," (Staff Report, 68-16, Act 1968).

Harry Williams, Planning for Effective Resource Allocation in Universities, Washington, D.C.: American Council on Education, 1966.

[2]Ramona First, Chairman, Department of Economics, California State University, San Francisco, papers presented at Symposium on Program Budget Evaluation Systems of the AAUP and the Association of Michigan Collegiate Faculties. Reported in the Michigan AAUP Letter, Vol. VII, No. 2 (June, 1973).

[3]Robert Adams, Assistant Chancellor, University of California, Santa Cruz and Chalmers Norris, Director of Planning and Budget Officer, Pennsylvania State University, papers presented at Symposium on Program Budget Evaluation Systems and Higher Education, op cit.

James Farmer, Why Planning - Programming - Budgeting Systems, PPBS for Higher Education? (Boulder, Colorado: Western Interstate Commission for Higher Education, February, 1970).

Robert J. Parden, An Introduction to Planning, Programming, Budgeting: An Evaluation for Colleges and Universities, (Santa Clara, California: University of Santa Clara, 1970).

In late 1965, at the height of PPBS activity in the federal government, the system had many enthusiastic advocates. Frank Dilley,[1] James Farmer,[2] and Robert Parden[3] argued for the adoption of program budgeting based on prospects for improved college and university management.

In March of 1973, a Symposium on Program Budget Evaluation Systems and Higher Education was sponsored by the Michigan Conference of the AAUP and the Association of Michigan Collegiate Faculties. Participants' assessment of the contribution of PPBS to university administration had cooled somewhat. Difficulties with implementation tempered the early vigorous optimism. However, most participants held the view that difficulties could be overcome, the system was sound, and basic methods were excellent.

Overview of the Study

The objectives of the inquiry were threefold. First, it was necessary to specify the nature of PPBS in detail. This is the "systemic meaning" or "meaning in use" of PPBS. Second, models for planning, decision-making and budgeting most appropriate to Wayne State University were selected. Third, examination indicated the meaning in use was consistent with the models. It should be pointed out that it was not the objective of the inquiry to develop a definition of PPBS which would be appropriate to Wayne State University or to examine the existing PPBS system utilized at Wayne. The objective was to determine if the PPBS "meaning in use" was consistent with planning, budgeting and decision-making models which were selected within the context of Wayne State University.

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[1]Frank B. Dilley, "Program Budgeting in a University Setting," Educational Record, Vol. 47 (Fall, 1966), No. 4.

[2]James Farmer, Why Planning, Programming, Budgeting Systems for Higher Education, (Boulder, Colorado: Western Interstate Commission for Higher Education, 1970).

[3]Robert J. Parden, An Introduction to Planning, Programming, Budgeting: An Evaluation for Colleges and Universities, (Santa Clara, California: University of Santa Clara, 1970).

Abraham Kaplan's[1] conceptual structure relative to the specification of the meaning of theoretical terms was accepted as the framework upon which the "systemic" or "meaning in use" of PPBS was established. Kaplan's conceptual structure is founded on the premise that theoretical terms cannot be defined in the strict sense. The meaning of theoretical terms such as PPBS is specified as the term is used in relation to other terms or sentances. As Kaplan would have it "each sentential occurance is partial determination of the meaning, but only as we encounter the term in more and more contexts of varying sorts do we come to understand it more fully."[2] Based on Kaplan's conceptualization, the theoretical term in question was Program-Budgeting-Evaluation-System. Its "meaning in use" was specified by reviewing the literature to learn how it has been systemically defined.

Models in the areas of "Planning Theory," "Budgeting Theory" and "Decision-Making Theory" were analyzed with the purpose of selecting models in each area. A mechanism was required in order to select planning, budgeting and decision-making models from among all models available. Since the author was associated with Wayne State University it appeared reasonable to utilize Wayne as that mechanism. A profile of Wayne State University was prepared by reviewing University documents. In capsule form the profile demonstrated that Wayne is a very large, complex, multifaceted institution. University governance is varied, involving many standing committees. Governance within the schools, colleges and departments exhibit a wide variety of patterns and configurations. The administrative structure of the University reflects substantial delegation of authority and responsibility to a large number of officers. Resources in terms of physical plant,

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[1]Abraham Kaplan, The Conduct of Inquiry, Scranton, Pennsylvania, Chandler Publishing Co., 1964.

[2]Ibid, p. 64.

faculty, support personnel and money are vast. The University may also be viewed as an institution which is comprised of aggregates or groups of people each concerned with advancing its specific interests through its collective bargaining agent or its representatives serving on governing bodies. Criteria were selected on the basis of appropriateness to Wayne. The task was to demonstrate "goodness of fit."

Eight components of George A. Steiner's[1] Conceptual Planning Model were accepted as criteria for planning. Seven attributes of budgeting identified in the writings of Glenn Welsh[2] and N.O. Knight and E.H. Weinworm[3] were accepted as criteria for budgeting. The three decision phases of Marcus Alexis and Charles Wilson's[4] Open Decision Model were accepted as criteria for decision-making. All of these were accepted on the basis of goodness of fit. That is to say they were most consistent with the characteristics of Wayne highlighted above.

Examination was conducted to determine if the PPBS meaning in use was consistent with criteria for planning, budgeting and decision-making. The PPBS meaning in use was judged to be inconsistent with all of the selected frameworks.

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[1]George A. Steiner, Top Management Planning, (New York: The Macmillan Company, 1969).

[2]Glenn Welsh, Budgeting: Profit Planning and Control, (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1971).

[3]W.D. Knight and E.H. Weinworm, Managerial Budgeting, (New York: Macmillan Company, 1964).

[4]Marcus Alexis and Charles Z. Wilson, eds., Organizational Decision Making, (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1967).

Observations Relative to Findings

Planning

A key component of George Steiner's Comprehensive Planning Model is the role of values of planners. Understanding the role of values of top executives involves the recognition that each individual who enters into the planning process has his own notions of fact, value, morals, ethics, and standards. These factors, which make up the frame of reference or mind set of the planners, influence ends selected for the organization entity as well as the means chosen to arrive at the ends.

It is worth noting that many scholars, writing about the planning process have recognized the role values play in planning; especially the roles values play in that phase of the planning process concerned with establishing goals and objectives. Denning indicates that judgments enter into the determination of objectives and goals. He states that many of these judgments are qualitative in nature.[1] Gilmore and Brandenburg recognize that "non-economic and business judgment" enter into the process of determining appropriate combinations of endeavor.[2] Finally, Anthony states that strategic planning decisions involve a preponderance of value judgments.[3]

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[1] Basil W. Denning, ed., Corporate Planning: Selected Concepts, New York: McGraw-Hill Book Co., 1971, p. 56.

[2] Frank Gilmore and R.G. Brandenberg, "Anatomy of Corporate Planning" Harvard Business Review, Vol. 40, (November-December, 1962), p. 63.

[3] Robert N. Anthony, Planning and Control Systems: A Framework for Analysis, Boston: Graduate School of Business Administration, Harvard University, 1965, p. 34.

The PPBS framework is inconsistent with the component of Steiner's framework concerned with understanding the role of values of planners. Program goals and objectives, according to the PPBS framework, are derived as end products of an objective, rational process. The PPBS framework does not sufficiently recognize that courses of action chosen to achieve program goals and objectives to a large degree reflect values held by top planners and which as pointed out earlier may be subjective and non-rational. This is well illustrated in the explicit definition of long range objectives utilized in the PPBS framework. According to the PPBS framework "long range objectives are determined on the basis of analysis of courses of action in terms of their relative costs and accomplishments or benefits in order to decide on which course of action (such as programs) to follow in order to achieve those objectives. The analysis required are variously referred to as cost-effectiveness, cost-utility, or cost benefit studies."[1]

A second key component of Steiner's Model is related to the inappropriateness of quantitative analytical techniques to the strategic planning process. For Steiner "Strategic planning is the process of determining the major objectives of an organization and the policies and strategies that will govern the acquisition, use and disposition of resources to achieve those objectives."[2]

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[1]U.S. General Accounting Office, Glossary for Systems Analysis and Planning-Programming-Budgeting, (October 1969).

[2]George A. Steiner, Top Management Planning, (New York: The Macmillan Company, 1969).

Strategic planning is concerned with a large range of alternatives, unstructured problems and consequently great uncertainty. Large amounts of information, in most cases derived from sources external to the organization, are required. Strategic planning is original in its reference. It involves few details and relies almost entirely on the subjective values of the planners. For these reasons quantitative analytical techniques have little applicability and evaluation is difficult.

In a typical university the choice of a major objective such as emphasis on programs which respond to the needs of cities is in part decided upon by consideration of the university's location, composition of student body, etc. However, for the most part they are a reflection of societal pressures and value judgments of policy makers.

The PPBS framework is inconsistent with Steiner's strategic planning component since it does not recognize the highly non-quantitative elements in selection of University goals and objectives. Rather, it specifies that quantitative analytical techniques such as cost-benefit, cost-efficiency, and cost-utility analysis must be utilized in the selection and identification of overall long-range objectives of the organization.

Budgeting

Broad based participation is a key element in the framework for budgeting proposed by Welsh and by Knight and Weinworm. The authors indicate that this is concerned with involving organization members in budget preparation, implementation and follow-up. Organization members would be involved in preparing estimates and contributing to the establishment of budget policy. In Welsh's view, the budget department does not determine what the budget should be. Rather, they supervise its compilation. Determination of the budget is the responsibility of the organizational sub-units.

In the University budgets are assembled through an upward aggregative process. As Allen Schick points out:

> Lowest level estimates form the building blocks for the next level where they are aggregated and reviewed and transmitted upward until the highest level is reached and the totality constitutes a department wide budget. Since budgeting is tied to a base, the building-up-from-below approach is sensible: each building block estimates the cost of what it is already doing plus the cost of increments it wants. (The building blocks, then, are decisional elements, not simply informational elements as is often assumed.)[1]

The PPBS framework is inconsistent with broad based participation. According to most of the descriptions of the PPBS framework, most organization members would not be included in the process of budget policy formulation. Rather a central group of policy makers would determine budget policy which is then passed down to organization members. Predetermined budget policy becomes the parameters or constraints within which budget estimates are to be prepared.

A second important element in the Welsh and Knight and Weinworm budgeting framework is that budget structure should be consistent with lines of authority and delegated responsibility. This element is concerned with tailoring the structure of the budget so that members of the organization who have been delegated authority and responsibility for achieving objectives of an "organizational sub-unit" also have responsibility for achieving fiscal objectives or the sub-unit. For a typical university this simply means that Deans and Directors who are held accountable for attaining academic objectives of their schools or colleges would also be held accountable for meeting the

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[1]Allen Schick, "The Road to PPB: The Stages of Budget Reform" in James W. Davis, ed., Politics and Budgets: A Reader in Government Budgeting, (New Jersey: Prentice Hall, Inc., 1969), p. 229.

fiscal objectives of their units. The PPBS framework is inconsistent with this element since most descriptions of the technique would structure the budget according to a conception of program which would, in effect, cut across organization sub-units. Individuals responsible for administering organizational sub-units would not necessarily be the same individuals responsible for achieving fiscal objectives. For example, the PPBS budget structure for a university may be such so that there are two programs - bachelors and masters programs. One individual would most probably be given responsibility for attaining program objectives which hypothetically may be a set number of bachelors degrees involving inputs of many departments in several colleges. This person, in most cases, would not be responsible for attaining the fiscal objectives of the english, mathematics, physics and other departments which contribute to the production of bachelor degrees.

Follow-up and evaluation is another essential element of the budgeting frameworks advanced by the authors. Follow-up and evaluation is concerned with the comparison of the budget to actual performance and evaluation of both positive and negative deviations so that financial control is maintained. The PPBS framework is inconsistent with this element since it is not concerned with the comparison of the budget to actual financial performance. Rather, it is concerned with demonstrating how effective programs are in achieving organizational goals and objectives. This is essentially the rational for establishing PPBS output measures.

Eidel and N[illegible]le's explicit definition of an output according to the PPBS framework illustrates the distinction between a measure of attainment of fiscal objectives and on output measure.

The definition is as follows: "outputs are the products or outcomes of the organizations processes and typically represent observable, measurable changes in the behavior or performance of people, things or processes.[1]

Decision-Making

The Marcus Alexis and Charles Wilson open decision-making model specified that the decision-maker(s) must pass through three phases in order to arrive at a decision.

In the first phase the decision maker first defines an idealized personal goal or goals (in other contexts idealized organization or community goals). He then defines one or more action or working goals "as a first approximation to the 'ideal'."[2] Alexis and Wilson indicate that "action goals are representative of the decision maker's aspiration level." Aspiration level is used here to be consistent with Kurt Lewin's conceptualization of level of aspiration.

This phase accepts several assumptions growing largely out of the writings of Kurt Lewin and Kenneth Boulding.[3] First, the decision maker or group of decision makers cannot recognize all goals. Second, the process of goal selection has both rational and non-rational components. Non-rational aspects of goal definition arise out of such elements of the frame of reference of the decision maker as culture, environment and personality.

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[1]Terry L. Eidell and John M. Nagle, PPBS and Data-Based Educational Planning, (Eugene, Oregon: Center for the Advanced Study of Educational Administration, January, 1970), p. 18.

[2]Marcus Alexis and Charles Wilson, eds., Organizational Decision Making, (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1967).

[3]Kurt Lewin, Resolving Social Conflicts, (New York: Harper and Brothers, 1948).

Kenneth Boulding, The Image, (Ann Arbor: University of Michigan Press, 1956).

The PPBS framework is inconsistent with this phase of Alexis and Wilson's model since the PPBS framework does not recognize that the process of goal definition is not clear cut. The university may be viewed as an institution which is comprised of aggregates or groups of people which may have different conceptions of university goals and objectives. Faculty, which number in excess of 1,400, provide instruction for both graduate and undergraduate students. It may be demonstrated that groups which comprise the university differ, in some degree, in their conception of university goals and objectives. Faculty may have a different conception of what constitutes a valid educational experience than students. Administrators or the Board of Governors may have a different conception than both faculty and students. Unions representing staff and maintenance employees may view priorities for resource allocation quite differently than faculty, students or other groups. Since differences in conceptions and perceptions of Wayne State University goals and objectives exist, it is apparent that goal selection is both difficult and perhaps value laden. A similar conclusion has been reached by many critics of PPBS. For example, Parden indicates that goal and objective definition is a difficult task. It involves resolution of differences among different interest groups which comprise the university.[1] Baughman feels that the differing goals and objectives of students, faculty, administration, and boards of trustees can be reconciled only through a political process.[2]

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[1]Robert J. Parden, An Introduction to Planning, Programming, Budgeting, An Evaluation for Colleges and Universities, Santa Clara, California: University of Santa Clara, 1970, p. 22.

[2]G.W. Baughman and Ronald Brady, "Towards a Theory of University Management," in Charles B. Johnson and William G. Katzenmeyer, Management Information Systems in Higher Education: The State of the Art, Durham, North Carolina: Duke University Press, 1969, p. 20.

The second phase of the model is concerned with discovering and defining a limited number of outcomes or alternatives. The relationships between outcomes or alternatives are not always defined. This phase is predicated on the assumption that the decision maker cannot, by virtue of his frame of reference, identify all possible alternatives. It is also assumed that learning will take place in the course of the search for and definition of alternatives. Search will provide additional knowledge and insights. Therefore, alternatives identified become the basis for further exploration or search for additional alternatives in an attempt to find a satisfactory solution.

The PPBS framework is inconsistent with the second phase of the model. Cost-benefit analysis and cost-efficiency analysis are part of systems analysis. Systems analysis is an approach to solving problems of choice or decision-making and has been incorporated into the PPBS framework. It is this feature which makes PPBS inconsistent with the second phase. Rather than identifying a limited number of alternatives, all feasible alternatives are theoretically identified. Recognizing the complexity of the university and its environment, it is highly unlikely that any decision-maker or group of decision-makers can assess or order all alternatives and variables. Furthermore, learning is not emphasized. Instead, all feasible alternatives are analyzed on the basis of cost and efficiency.

G.H. Fisher's description of cost-effectiveness analysis highlights the differences in the treatment of alternatives between the Alexis and Wilson and PPBS frameworks. Fisher states:

> Cost-Effectiveness analysis enables a decision maker to choose from among feasible alternatives on the basis of least cost and greatest effectiveness. Usually this technique consists of "...an attempt to minimize dollar costs subject to some mission requirement, or conversely, to maximize some physical measure of output subject to a budget constraint." Comparisons are made systematically in numerical terms using a logical sequence of steps that can be retraced and verified by others. The final stage in this process, after the construction of a model to represent the various choices available, is ranking the alternatives in order of preference. The criterion for preference is estimated cost in relation to anticipated performance for each alternative. An implicit assumption is that the system to be costed can be described adequately for costing purposes.[1]

The third phase of the Alexis and Wilson Model is concerned with choosing an alternative that will satisfy an aspiration level. It is predicated on the assumption that in most choice situations clear, accepted utility functions do not exist. Therefore, in decision making one would "satisfice" (satisfy an aspiration level) rather than "maximize" (choose an ideal alternative).

The PPBS framework is inconsistent with the third phase of the Model since cost-benefit, cost-utility analysis as part of the PPBS framework assumes that a utility function exists and that the alternative chosen will maximize whatever utility is assumed. The technique seeks to maximize a physical measure of output. The utility measure is estimated cost in relation to anticipated performance.

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[1] G.J. Fisher, "The Role of Cost-Utility Analysis in Program Budgeting" (Santa Monica, California: Rand Corporation, September, 1964), p. 3, cited by Williams, Planning for Effective, p. 46.

Cost benefit and cost efficiency analysis as part of the PPBS framework assume that a utility function exists and that the alternative chosen will maximize whatever utility is assumed. Fisher's description of cost-effectiveness analysis previously cited is an excellent example. The description points out that the technique seeks to maximize some physical measure of output and that the utility measure is estimated cost in relation to anticipated performance.

It may be asserted that search for a single measure of utility would be difficult at the university. For example, acceptance of instructional cost as a utility function may be acceptable to administration and unacceptable to faculty or students; acceptance of increase in cognitive skills as a valid utility function may be acceptable to some students and faculty and unacceptable to others.

In view of the diverse activities and perceptions of university purpose discussed it would indeed be difficult to find and achieve acceptance of a single, quantifiable measure of utility against which alternatives may be measured.

Conclusion

Findings of this study challenge commonly accepted assertions that PPBS can improve planning, budgeting, and decision-making within the context of a particular public university. To the extent that Wayne State University may be viewed as representative of public universities, the findings may be further generalized. Findings appear to shed some much needed light on why PPBS has not lived up to the glowing hopes and expectations of its advocates and may provide the basis for predicting the "demise of PPBS in the university."

References

Marcus Alexis and Charles Z. Wilson, eds., Organizational Decision Making, (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1967).

Robert N. Anthony, Planning and Control Systems: A Framework for Analysis, Boston: Graduate School of Business Administration, Harvard University, 1965.

G.W. Baughman and Ronald Brady, "Towards a Theory of University Management," in Charles B. Johnson and William G. Katzenmeyer, Management Information Systems in Higher Education: The State of the Art, Durham, North Carolina: Duke University Press, 1969.

Kenneth Boulding, The Image, (Ann Arbor: University of Michigan Press, 1956).

Coordinating Council for Higher Education, "The Development of the State's Programming and Budgeting System in California Public Higher Education," (Staff Report, 68-16, Act 1968).

Basil W. Denning, ed., Corporate Planning: Selected Concepts, New York: McGraw-Hill Book Co., 1971.

Frank B. Dilley, "Program Budgeting in a University Setting," Educational Record, Vol. 47 (Fall, 1966), No. 4.

Terry L. Eidell and John M. Nagle, PPBS and Data-Based Educational Planning, (Eugene, Oregon: Center for the Advanced Study of Educational Administration, January, 1970).

James Farmer, Why Planning - Programming - Budgeting Systems, PPBS for Higher Education? (Boulder, Colorado: Western Interstate Commission for Higher Education, February, 1970).

G.J. Fisher, "The Role of Cost-Utility Analysis in Program Budgeting" (Santa Monica, California: Rand Corporation, September, 1964), cited by Williams, Planning for Effective.

Frank Gilmore and R.G. Brandenberg, "Anatomy of Corporate Planning" Harvard Business Review, Vol. 40, (November-December, 1962).

Kurt Lewin, Resolving Social Conflicts, (New York: Harper and Brothers, 1948).

Abraham Kaplan, The Conduct of Inquiry, Scranton, Pennsylvania, Chandler Publishing Co., 1964.

W.D. Knight and E.H. Weinworm, Managerial Budgeting, (New York: Macmillan Company, 1964).

Marvin W. Peterson, "The Potential Impact of PPBS on Colleges and Universities," Journal of Higher Education, Vol. 42, No. 4 (April, 1969).

Melvyn C. Raider, "Program Budgeting and Organization Theory" unpublished Ph.D. dissertation, Wayne State University, 1973.

Allen Schick, "A Death in the Bureaucracy: The Demise of the Federal PPB" Public Administration Review, March/April 1973.

Allen Schick, "The Road to PPB: The Stages of Budget Reform" in James W. Davis, ed., Politics and Budgets: A Reader in Government Budgeting, (New Jersey: Prentice Hall, Inc., 1969).

George A. Steiner, Top Management Planning, (New York: The Macmillan Company, 1969).

U.S. General Accounting Office, Glossary for Systems Analysis and Planning-Programming-Budgeting, (October 1969).

Glenn Welsh, Budgeting: Profit Planning and Control, (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1971).

Harry Williams, Planning for Effective Resource Allocation in Universities, Washington, D.C.: American Council on Education, 1966.